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EXAMINER

MAI, KEVIN S

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2456

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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/708,260	Applicant(s) ABRAMSON ET AL.	
	Examiner KEVIN S. MAI	Art Unit 2456	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 9-12 and 14-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-12 and 14-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action has been issued in response to Applicant's Request for Continued Examination filed September 30, 2010.
2. Claims 1-11, 18 and 19 have been amended. Claims 1-6, 9-12 and 14-19 are pending in the application.

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 30, 2010 has been entered.

Response to Arguments

4. Applicant's arguments filed September 30, 2010 have been fully considered but they are not persuasive.
5. Applicant's arguments with respect to claim 1 have been considered but they are not persuasive. Applicant argues that Singal does not teach or suggest a download manager executing on a client computer for retrieving, and storing in a mass storage device a portion of a content file, the download manager determining a size of the portion to retrieve in response to a bandwidth message received from the bandwidth measurement module. Examiner disagrees.

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6. Firstly, applicants have amended claim 1 to replace the term "client computer" with "computer system" which is broader. This raises a few issues. One is that the argument that the download manager is executing on the client computer appears to be addressed by the fact that the download manager no longer is required to be on the client computer. Due to the broader language the download manager simply needs to be part of the computer system. Another issue is that this opens the claims up to interpretations that do not appear to be supported by the specification, such as the download manager being on other computers that are part of the computer system. The other independent claims do not appear to be affected by these issues as they retain language tying the components to the client computer.

7. Secondly, the limitations are seen to be obvious in view of Singal. With respect to the components not being on the client computer, such a system would have been obvious in view of Singal. While Singal discloses the measurement to occur from the server it is seen that it would be an obvious variant for the client to perform this function as well. Since the measurement would be substantially the same from either side of the connection it is seen that such a variant would be simple substitution of one known element for another. Then as to retrieving and storing the portion, column 5 lines 55-60 disclose "the prefix is distributed to the prefix cached 118 a priori". Thus it is seen that the portion is retrieved and stored. Then with respect to the download manager determining a size of the portion to retrieve in response to a bandwidth message received from the bandwidth measurement module, Figure 5, column 6 lines 50 – 67, and column 7 lines 1 – 20 disclose querying the available bandwidth (step 158) and then computing a prefix size according to this bandwidth (step 160). Then the system begins to load data until the size of the data is greater than or equal to the calculated prefix size. Thus since the

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available bandwidth is queried (bandwidth measurement) and the prefix size is computed according to this bandwidth (determining a size), it is seen that the proper components were informed of the determined bandwidth.

8. Based on applicant's specific amendment of "in response to a bandwidth message received from the bandwidth measurement module" it appears that applicant's focus in this argument is an explicit message. Firstly, examiner was unable to find support for this in the cited paragraphs, paragraph [0044] disclosing "the bandwidth measurement device 36 communicates with the download manager 34" and paragraph [0091] discloses "termination occurs in response to a signal sent from the bandwidth determination device 36". However examiner was unable to find an explicit disclosure of "the download manager determining a size of the portion to retrieve in response to a bandwidth message received from the bandwidth measurement module". The recitation paragraph [0091] discloses that the bandwidth measurement device will terminate the download but does not disclose that a size is determined in response to a message. Secondly, such a feature is already reasonably part of the system disclosed by Singal. Figure 5, column 6 lines 50 – 67, and column 7 lines 1 – 20 disclose querying the available bandwidth (step 158) and then computing a prefix size according to this bandwidth (step 160). It is clear that the measured bandwidth is reported to the appropriate component such that the prefix can be calculated according to the bandwidth. Thus although there is no explicit recitation of a bandwidth message being sent, the system appropriately calculates the size of the prefix according to the determined bandwidth and as such it is seen that the correct components were informed of the determined bandwidth. As such a message is sent to the appropriate components to inform them of the determined bandwidth.

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9. Applicants further argue that the references do not disclose "terminating, by the download manager, retrieval of the content file upon receiving the determined size of the portion of the content file. Applicants argue that Arsenault does not teach an active step of terminating retrieval of its first segment. Instead, Arsenault completes the retrieval of its first segment - there is no termination of Arsenault's retrieval of its first segment upon receiving a determined size of the portion of the content file. Examiner disagrees. In fact, applicants arguments support Arsenault teaching terminating, applicants state that Arsenault completes the retrieval of its first segment. Accordingly since the retrieval has been completed the process of retrieving is terminated. The completion of a process inherently includes the termination of the process. While applicant argues an "active termination", it is seen that Arsenault inherently fulfils the requirement of termination when the retrieval process completes. Additionally since the process completes for a first segment it is seen that the termination occurs upon receiving the determined size, namely, the entire first segment.
10. Applicant's remaining arguments are the same as those recited above. Accordingly examiner argues the same responses used above.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the first paragraph of 35 U.S.C. 112:
- The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
12. Claims 1, 10, 18 and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which

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was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The independently claims have amended in language involving a “bandwidth message received from the bandwidth measurement module”. However examiner was unable to find support for this in the cited paragraphs, paragraph [0044] disclosing “the bandwidth measurement device 36 communicates with the download manager 34” and paragraph [0091] discloses “termination occurs in response to a signal sent from the bandwidth determination device 36”. However examiner was unable to find an explicit disclosure of “the download manager determining a size of the portion to retrieve in response to a bandwidth message received from the bandwidth measurement module”. The recitation paragraph [0091] discloses that the bandwidth measurement device will terminate the download but does not disclose that a size is determined in response to a message. Additionally claim 1 has been amended to replace "client computer" with “computer system” which is broader. This opens the claim up to interpretations that do not appear to be supported by the specification, such as the download manager being on other computers that are part of the computer system.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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14. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claims 1-6, 9-12 and 16-19 rejected under 35 U.S.C. 103(a) as being unpatentable over Us Pub. No. 2004/0148634 to Arsenault et al. (hereinafter "Arsenault") and further in view of US Pat. No. 6859840 to Singal et al. (hereinafter "Singal") and further in view of US Pub. No. 2003/0016630 to Vega-Garcia et al. (hereinafter "Vega-Garcia").

17. **As to Claim 1**, Arsenault discloses a **computer system comprising:**

a mass storage device (Paragraph [0047] of Arsenault discloses a local storage unit such as the video storage device 232 for storing video);

a processor (Paragraph [0045] of Arsenault discloses a microcontroller);

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[a bandwidth measurement module executed by said processor for dynamically determining, during transfer of a content file over a network, a bandwidth of a network connection over which the content file is being retrieved];

a download manager executed by said processor for retrieving, and storing in the mass storage device, a portion of the content file, [the download manager determining a size of the portion to retrieve in response to a bandwidth message received from the bandwidth measurement module] (Paragraph [0074] of Arsenault discloses a video program being selected and a first segment of the video program is received and stored. Typically, the time length of the pre-stored video program material segment is equal to the rebroadcast interval); and

a presentation manager executed by said processor for retrieving the portion of the content file from the mass storage device and displaying the portion with a media player application (Paragraph [0075] of Arsenault discloses when the user request VOD service, the pre-stored segment is retrieved for presentation to the subscriber),

the download manager retrieving a remainder portion of the content file in response to the presentation manager displaying the retrieved portion of the content file (Paragraph [0011] of Arsenault discloses once the user demands VOD playback, the pre-stored video segment is played back to the user, while the remaining subsequent segments of the video program are received and recorded in parallel).

Arsenault does not explicitly disclose **a bandwidth measurement module executed by said processor for ... determining, during transfer of a content file over a network, a bandwidth of a network connection over which the content file is being retrieved and the download**

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manager determining a size of the portion to retrieve in response to a bandwidth message received from the bandwidth measurement module

18. However, Singal discloses this. Figure 5, column 6 lines 50 – 67, and column 7 lines 1 – 20 of Singal disclose querying the available bandwidth (step 158) and then computing a prefix size according to this bandwidth (step 160). Then the system begins to load data until the size of the data is greater than or equal to the calculated prefix size. Thus it is seen that during the retrieval of the prefix the bandwidth is being measured. It is noted that Singal discloses the measurement of the prefix based on bandwidth in the scenario where the file is unavailable on the edge server at the time of a request. However Singal also discloses preloading prefixes on the edge server prior to a request. Although it is not explicitly disclosed to measure the size of the preloaded prefix based on the bandwidth, it would be obvious to apply the same logic used for the scenario in which the file is unavailable to calculate these prefix sizes. This idea of using the bandwidth for the preloaded prefixes is further supported in Singal in column 5 lines 55 – 65 which states the prefix is distributed to the edge server wherein the prefix size can be determined manually or automatically based on network capacity and/or other conditions. This is read to imply the usage of bandwidth measurement is used to determine the amount sent. Additionally, while Singal discloses the measurement to occur from the server it is seen that it would be an obvious variant for the client to perform this function as well. Since the measurement would be substantially the same from either side of the connection it is seen that such a variant would be simple substitution of one known element for another. With respect to a message being sent from the bandwidth module, it is clear that the measured bandwidth is reported to the appropriate component such that the prefix can be calculated according to the bandwidth. Thus although

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there is no explicit recitation of a bandwidth message being sent, the system appropriately calculates the size of the prefix according to the determined bandwidth and as such it is seen that the correct components were informed of the determined bandwidth.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the media distribution system as disclosed by Arsenault, with bandwidth measurements to determine a prefix as disclosed by Singal. One of ordinary skill in the art would have been motivated to combine to apply a known technique to a known device. Paragraph [0074] of Arsenault discloses the time length of the pre-stored video program material segment is equal to the rebroadcast interval. This allows all of the subsequent time segments of the video program to be recorded while the pre-stored video program segment is played back for viewing. Accordingly it is seen that Arsenault suggests having somehow determined a pre-stored segment size such that the latter segments can be recorded. Thus it would have been obvious to implement Singal's system for determining such a size.

Arsenault-Singal does not explicitly disclose the bandwidth measurement occurring **dynamically** during transfer of the content file.

However, Vega-Garcia discloses this. Paragraph [0035] of Vega-Garcia discloses periodically sending dummy packets along with control packets to provide persistent proving of the network. This provides a way of persistently approximating the bandwidth capacity between devices engaged in the session

It would have been obvious to one of ordinary skill in the art at the time of invention to combine media distribution system as disclosed by Arsenault-Singal, with having the bandwidth measurement be done persistently as disclosed by Vega-Garcia. One of ordinary skill in the art

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would have been motivated to combine improve the accuracy of the measurement. Using the persistent bandwidth measurement process in place of Singal's measurement process is seen to be simple substitution of one known element for another to obtain predictable results. Both measurement processes were well known in the art at the time of invention and as such would be obvious to use them interchangeably for their known benefits.

19. **As to Claim 2**, Arsenault-Singal-Vega-Garcia discloses **the computer system of claim 1 wherein the bandwidth measuring module makes a second determination of the bandwidth of the network connection over which the content file is being retrieved, and the download manager responsive to the second determination establishes a second size for a new portion of the content file to retrieve** (Figure 5, column 6 lines 50 – 67, and column 7 lines 1 – 20 of Singal disclose a scenario in which not enough of a prefix has been cached at the edge server. This initial prefix is the prefix that would have been calculated in claim 1. When a video is requested the bandwidth needed to playback the video smoothly is calculated based on the current prefix size and the size of the whole file (step 170). It then measures the bandwidth to see if enough is available (step 172). If not enough bandwidth is available it goes onto steps 158 and 160 which involve measuring the bandwidth and computing a new prefix size. This is seen to be the same as a second bandwidth determination establishing a second size of the content file).

Examiner recites the same rationale to combined used in claim 1.

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20. **As to Claim 3**, Arsenault-Singal-Vega-Garcia discloses **the computer system of claim 1 wherein the bandwidth measurement module uses a timer data value, a total size of the portion, and a current progress of the retrieval of the portion to determine when the download manager has downloaded a sufficient portion of the content file such that the download manager would be able to download the remainder of the data file before the player application finishes playing the portion of the content file from the mass storage device** (Figure 5, column 6 lines 50 – 67, and column 7 lines 1 – 20 of Singal disclose computing the prefix size in such a fashion such that starvation is avoided (step 160). The formula used is $p' = T(1 - R/B)$ where p' is the prefix size calculated to be downloaded, T is the total size of the file, B is the file bit rate, and R is the transfer rate of the file. Then in steps 162 and 164 data (d) is loaded until d is $\geq p'$. Thus the two rates, R and B , are seen to be equivalent to the timer data value, the total size is considered in T , and the current progress is seen to be the same as d).

Examiner recites the same rationale to combined used in claim 1.

21. **As to Claim 4**, Arsenault-Singal-Vega-Garcia discloses **the computer system of claim 1 wherein the bandwidth measurement module comprises a timer** (Paragraph [0027] of Vega-Garcia discloses utilizing time between packets to determine bandwidth. This is seen to be using a timer).

Examiner recites the same rationale to combine used in claim 1.

22. **As to Claim 5**, Arsenault-Singal-Vega-Garcia discloses **the computer system of claim 1 wherein the bandwidth measurement module and the download manager comprise a single**

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process (Figure 5, column 6 lines 50 – 67, and column 7 lines 1 – 20 of Singal disclose measuring the bandwidth in order to load the correct amount of data. This is seen to be having the bandwidth measurement and downloading happening within a single process).

Examiner recites the same rationale to combined used in claim 1.

23. **As to Claim 6**, Arsenault-Singal-Vega-Garcia discloses **the computer system of claim 1**. Arsenault-Singal-Vega-Garcia does not explicitly disclose **wherein the download manager comprises a thread process**.

However it would have been obvious to have Arsenault-Singal-Vega-Garcia perform this limitation. Making a program a thread process is a well-known and thoroughly documented idea. Threaded processes have the advantage that they can perform several tasks concurrently without the extra overhead needed to create a new process. Since making a program into a threaded process would tend to make it faster to execute it would be obvious to one of ordinary skill in the art at the time of invention to improve the download manager by making it a threaded process.

24. **As to Claim 9**, Arsenault-Singal-Vega-Garcia discloses **the computer system of claim 1 wherein the presentation manager comprises a Windows Media Player application** (Column 6 lines 20 – 25 of Singal discloses using Windows Media Server to provide the streaming media. This would imply the usage of the Window Media Player on the client side).

Examiner recites the same rationale to combined used in claim 1.

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25. As to Claim 10, Arsenault discloses a method comprising:

(a) retrieving by a download manager executed by a processor of a client computer, a

content file (Paragraph [0074] of Arsenault discloses a video program being selected and a first segment of the video program is received and stored. Typically, the time length of the pre-stored video program material segment is equal to the rebroadcast interval);

[(b) dynamically determining, by a bandwidth measurement module executed by said processor and during transfer of the content file over a network, a bandwidth of a network connection over which the content file is being retrieved];

(c) determining, by the download manager, a size of a portion of the content file to retrieve [in response to a bandwidth message comprising the bandwidth determination by the

bandwidth measurement module] (Paragraph [0074] of Arsenault discloses a video program being selected and a first segment of the video program is received and stored. Typically, the time length of the pre-stored video program material segment is equal to the rebroadcast interval);

(d) terminating, by the download manager, retrieval of the content file upon receiving the

determined size of the portion of the content file (Paragraph [0074] of Arsenault discloses a video program being selected and a first segment of the video program is received and stored. Typically, the time length of the pre-stored video program material segment is equal to the rebroadcast interval);

(e) displaying, with a media player application executing on the client computer, the

retrieved portion of the content file (Paragraph [0075] of Arsenault discloses when the user request VOD service, the pre-stored segment is retrieved for presentation to the subscriber); **and**

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(f) retrieving, by the client computer in response to step (e), a remainder portion of the content file (Paragraph [0011] of Arsenault discloses once the user demands VOD playback, the pre-stored video segment is played back to the user, while the remaining subsequent segments of the video program are received and recorded in parallel).

Arsenault does not explicitly disclose **dynamically determining, by a bandwidth measurement module executed by said processor and during transfer of the content file over a network, a bandwidth of a network connection over which the content file is being retrieved and determining in response to a bandwidth message comprising the bandwidth determination by the bandwidth measurement module**

26. However, Singal discloses this. Figure 5, column 6 lines 50 – 67, and column 7 lines 1 – 20 of Singal disclose querying the available bandwidth (step 158) and then computing a prefix size according to this bandwidth (step 160). Then the system begins to load data until the size of the data is greater than or equal to the calculated prefix size. Thus it is seen that during the retrieval of the prefix the bandwidth is being measured. It is noted that Singal discloses the measurement of the prefix based on bandwidth in the scenario where the file is unavailable on the edge server at the time of a request. However Singal also discloses preloading prefixes on the edge server prior to a request. Although it is not explicitly disclosed to measure the size of the preloaded prefix based on the bandwidth, it would be obvious to apply the same logic used for the scenario in which the file is unavailable to calculate these prefix sizes. This idea of using the bandwidth for the preloaded prefixes is further supported in Singal in column 5 lines 55 – 65 which states the prefix is distributed to the edge server wherein the prefix size can be determined manually or automatically based on network capacity and/or other conditions. This is read to

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imply the usage of bandwidth measurement is used to determine the amount sent. Additionally, while Singal discloses the measurement to occur from the server it is seen that it would be an obvious variant for the client to perform this function as well. Since the measurement would be substantially the same from either side of the connection it is seen that such a variant would be simple substitution of one known element for another. With respect to a message being sent from the bandwidth module, it is clear that the measured bandwidth is reported to the appropriate component such that the prefix can be calculated according to the bandwidth. Thus although there is no explicit recitation of a bandwidth message being sent, the system appropriately calculates the size of the prefix according to the determined bandwidth and as such it is seen that the correct components were informed of the determined bandwidth.

Examiner recites the same rationale to combine used in claim 1.

Arsenault-Singal does not explicitly disclose the bandwidth measurement occurring **dynamically** during transfer of the content file.

However, Vega-Garcia discloses this. Paragraph [0035] of Vega-Garcia discloses periodically sending dummy packets along with control packets to provide persistent proving of the network. This provides a way of persistently approximating the bandwidth capacity between devices engaged in the session

Examiner recites the same rationale to combined used in claim 1.

27. **As to Claim 11**, Arsenault-Singal-Vega-Garcia discloses **the method of claim 10 further comprising making by the bandwidth measurement module, a second determination of the bandwidth of a network connection over which the content file is**

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retrieved during the transfer of the content file over the network and determining, by the download manager in response to the bandwidth measurement module, a second size of a new portion of the content file to retrieve (Figure 5, column 6 lines 50 – 67, and column 7 lines 1 – 20 of Singal disclose a scenario in which not enough of a prefix has been cached at the edge server. This initial prefix is the prefix that would have been calculated in claim 1. When a video is requested the bandwidth needed to playback the video smoothly is calculated based on the current prefix size and the size of the whole file (step 170). It then measures the bandwidth to see if enough is available (step 172). If not enough bandwidth is available it goes onto steps 158 and 160 which involve measuring the bandwidth and computing a new prefix size. This is seen to be the same as a second bandwidth determination establishing a second size of the content file).

Examiner recites the same rationale to combined used in claim 1.

28. **As to Claim 12, Arsenault-Singal-Vega-Garcia discloses the method of claim 10 further comprising using, by the bandwidth measurement module, a timer data value, a total size of the retrieval, and a current progress of the portion retrieved to determine when the download manager has downloaded a sufficient portion of the content file such that the download manager is able to download the remainder of the data file before the player application finishes playing the portion of the content file from the mass storage device** (Figure 5, column 6 lines 50 – 67, and column 7 lines 1 – 20 of Singal disclose computing the prefix size in such a fashion such that starvation is avoided (step 160). The formula used is $p' = T(1 - R/B)$ where p' is the prefix size calculated to be downloaded, T is the total size of the file, B

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is the file bit rate, and R is the transfer rate of the file. Then in steps 162 and 164 data (d) is loaded until d is $\geq p'$. Thus the two rates, R and B , are seen to be equivalent to the timer data value, the total size is considered in T , and the current progress is seen to be the same as d).

Examiner recites the same rationale to combined used in claim 1.

29. **As to Claim 16**, Arsenault-Singal-Vega-Garcia discloses **the method of claim 10 further comprising the step of displaying with a media player application the remainder of the content file** (Column 6 lines 45 – 50 of Singal disclose using QuickTime to play the video stream).

Examiner recites the same rationale to combined used in claim 1.

30. **As to Claim 17**, Arsenault-Singal-Vega-Garcia discloses **the method of claim 10 wherein step (e) and step (f) occur substantially concurrently** (Paragraph [0011] of Arsenault discloses once the user demands VOD playback, the pre-stored video segment is played back to the user, while the remaining subsequent segments of the video program are received and recorded in parallel).

31. **As to Claim 18**, Arsenault discloses **a computer readable program means operating on an article of manufacture and containing instructions executable by a client computer for performing a method for efficiently downloading a page of broadband content including a first content file and a second content file, the method comprising:**

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retrieving a content file (Paragraph [0074] of Arsenault discloses a video program being selected and a first segment of the video program is received and stored. Typically, the time length of the pre-stored video program material segment is equal to the rebroadcast interval); **[dynamically determining, by a bandwidth measurement module during transfer of the content file over a network, a bandwidth of a network connection over which the content file is being retrieved];**

determining a size of a portion of the content file to retrieve [in response to a bandwidth message from the bandwidth measurement module comprising the bandwidth

measurement determination] (Paragraph [0074] of Arsenault discloses a video program being selected and a first segment of the video program is received and stored. Typically, the time length of the pre-stored video program material segment is equal to the rebroadcast interval); **terminating, by a download manager, retrieval of the content file upon receiving of the determined size of the portion of the content file** (Paragraph [0074] of Arsenault discloses a video program being selected and a first segment of the video program is received and stored. Typically, the time length of the pre-stored video program material segment is equal to the rebroadcast interval);

displaying with a media player application the retrieved portion of the content file

(Paragraph [0075] of Arsenault discloses when the user request VOD service, the pre-stored segment is retrieved for presentation to the subscriber); **and**

retrieving, in response to displaying with a media player application the retrieved portion of the content file, the remainder of the content file (Paragraph [0011] of Arsenault discloses once the user demands VOD playback, the pre-stored video segment is played back to the user,

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while the remaining subsequent segments of the video program are received and recorded in parallel).

Arsenault does not explicitly disclose **dynamically determining, by a bandwidth measurement module during transfer of the content file over a network, a bandwidth of a network connection over which the content file is being retrieved and determining in response to a bandwidth message from the bandwidth measurement module comprising the bandwidth measurement determination**

32. However, Singal discloses this. Figure 5, column 6 lines 50 – 67, and column 7 lines 1 – 20 of Singal disclose querying the available bandwidth (step 158) and then computing a prefix size according to this bandwidth (step 160). Then the system begins to load data until the size of the data is greater than or equal to the calculated prefix size. Thus it is seen that during the retrieval of the prefix the bandwidth is being measured. It is noted that Singal discloses the measurement of the prefix based on bandwidth in the scenario where the file is unavailable on the edge server at the time of a request. However Singal also discloses preloading prefixes on the edge server prior to a request. Although it is not explicitly disclosed to measure the size of the preloaded prefix based on the bandwidth, it would be obvious to apply the same logic used for the scenario in which the file is unavailable to calculate these prefix sizes. This idea of using the bandwidth for the preloaded prefixes is further supported in Singal in column 5 lines 55 – 65 which states the prefix is distributed to the edge server wherein the prefix size can be determined manually or automatically based on network capacity and/or other conditions. This is read to imply the usage of bandwidth measurement is used to determine the amount sent. Additionally, while Singal discloses the measurement to occur from the server it is seen that it would be an

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obvious variant for the client to perform this function as well. Since the measurement would be substantially the same from either side of the connection it is seen that such a variant would be simple substitution of one known element for another. With respect to a message being sent from the bandwidth module, it is clear that the measured bandwidth is reported to the appropriate component such that the prefix can be calculated according to the bandwidth. Thus although there is no explicit recitation of a bandwidth message being sent, the system appropriately calculates the size of the prefix according to the determined bandwidth and as such it is seen that the correct components were informed of the determined bandwidth.

Examiner recites the same rationale to combine used in claim 1.

Arsenault-Singal does not explicitly disclose the bandwidth measurement occurring **dynamically** during transfer of the content file.

However, Vega-Garcia discloses this. Paragraph [0035] of Vega-Garcia discloses periodically sending dummy packets along with control packets to provide persistent proving of the network. This provides a way of persistently approximating the bandwidth capacity between devices engaged in the session

Examiner recites the same rationale to combined used in claim 1.

33. **As to Claim 19**, Arsenault discloses **a client computer comprising:**

a mass storage device (Paragraph [0047] of Arsenault discloses a local storage unit such as the video storage device 232 for storing video);

a processor (Paragraph [0045] of Arsenault discloses a microcontroller);

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[a bandwidth measurement module executed by said processor for dynamically determining, prior to retrieval of a content file, a bandwidth of a network connection over which the content file will be retrieved];

a download manager executed by said processor for retrieving, and storing in the mass storage device, a portion of the content file, [the download manager determining a size of the portion to retrieve in response to a bandwidth message comprising the determination made by the bandwidth measurement module] (Paragraph [0074] of Arsenault discloses a

video program being selected and a first segment of the video program is received and stored.

Typically, the time length of the pre-stored video program material segment is equal to the rebroadcast interval): **and**

a presentation manager executed by said processor for retrieving the portion of the content file from the mass storage device and displaying the portion with a media player

application (Paragraph [0075] of Arsenault discloses when the user request VOD service, the pre-stored segment is retrieved for presentation to the subscriber),

wherein the download manager retrieves a remainder of the content file in response to the presentation manager displaying the retrieved portion of the content file (Paragraph [0011]

of Arsenault discloses once the user demands VOD playback, the pre-stored video segment is played back to the user, while the remaining subsequent segments of the video program are received and recorded in parallel).

Arsenault does not explicitly disclose **a bandwidth measurement module executed by said processor for dynamically determining, prior to retrieval of a content file, a bandwidth of a network connection over which the content file will be retrieved and the download manager**

determining a size of the portion to retrieve in response to a bandwidth message comprising the determination made by the bandwidth measurement module

34. However, Singal discloses this. Figure 5, column 6 lines 50 – 67, and column 7 lines 1 – 20 of Singal disclose querying the available bandwidth (step 158) and then computing a prefix size according to this bandwidth (step 160). Then the system begins to load data until the size of the data is greater than or equal to the calculated prefix size. Thus it is seen that during the retrieval of the prefix the bandwidth is being measured. It is noted that Singal discloses the measurement of the prefix based on bandwidth in the scenario where the file is unavailable on the edge server at the time of a request. However Singal also discloses preloading prefixes on the edge server prior to a request. Although it is not explicitly disclosed to measure the size of the preloaded prefix based on the bandwidth, it would be obvious to apply the same logic used for the scenario in which the file is unavailable to calculate these prefix sizes. This idea of using the bandwidth for the preloaded prefixes is further supported in Singal in column 5 lines 55 – 65 which states the prefix is distributed to the edge server wherein the prefix size can be determined manually or automatically based on network capacity and/or other conditions. This is read to imply the usage of bandwidth measurement is used to determine the amount sent. Additionally, while Singal discloses the measurement to occur from the server it is seen that it would be an obvious variant for the client to perform this function as well. Since the measurement would be substantially the same from either side of the connection it is seen that such a variant would be simple substitution of one known element for another. With respect to a message being sent from the bandwidth module, it is clear that the measured bandwidth is reported to the appropriate component such that the prefix can be calculated according to the bandwidth. Thus although

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there is no explicit recitation of a bandwidth message being sent, the system appropriately calculates the size of the prefix according to the determined bandwidth and as such it is seen that the correct components were informed of the determined bandwidth.

Examiner recites the same rationale to combine used in claim 1.

Arsenault-Singal does not explicitly disclose the bandwidth measurement occurring **dynamically** during transfer of the content file.

However, Vega-Garcia discloses this. Paragraph [0035] of Vega-Garcia discloses periodically sending dummy packets along with control packets to provide persistent proving of the network. This provides a way of persistently approximating the bandwidth capacity between devices engaged in the session

Examiner recites the same rationale to combined used in claim 1.

35. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arsenault-Singal-Vega-Garcia and further in view of U.S. Pub. No. 2004/0128343 to Mayer (hereinafter “Mayer”).

36. **As to Claim 14**, Arsenault-Singal-Vega-Garcia discloses **the method of claim 10**. Arsenault-Singal-Vega-Garcia does not explicitly disclose **wherein step (f) comprises retrieving, in response to step (e), the remainder of the content file from a peer-to-peer network**.

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However, Mayer discloses this. Paragraph [0047] of Mayer discloses that in another preferred embodiment, program segments A are shared by end-users, interconnected by broadband, through peer-to-peer technology.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of claim 10 disclosed by Arsenault-Singal-Vega-Garcia, with using a peer-to-peer network disclosed by Mayer. One of ordinary skill in the art at the time the invention was made would have been motivated to combine in order to reduce the overhead of the provider and be able to more efficiently use their own bandwidth.

37. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arsenault-Singal-Vega-Garcia and further in view of US Pub. No. 2003/0037331 to Lee (hereinafter "Lee").

38. **As to Claim 15**, Arsenault-Singal-Vega-Garcia discloses **the method of claim 10**. Arsenault-Singal-Vega-Garcia does not explicitly disclose **wherein step (t) comprises retrieving, in response to step (e), the remainder of the content file from a multicast network**.

However, Lee discloses this. Paragraphs [0008]-[0009] of Lee disclose a VOD system where users may first receive a dynamically initiated front portion of a video and then be merged into a pre-scheduled multicast.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the method of claim 10 as disclosed by Arsenault-Singal-Vega-Garcia, with using multicast as disclosed by Lee. One of ordinary skill in the art would have been motivated to

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combine to use simple substitution of one known element for another. Lee discloses a similarly VOD system as Arsenault and as such it would be obvious to utilized techniques of one in the other.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN S. MAI whose telephone number is (571)270-5001. The examiner can normally be reached on Monday through Friday 7:30 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia can be reached on (571)272-3880. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. S. M./
Examiner, Art Unit 2456

/Rupal D. Dharia/
Supervisory Patent Examiner, Art Unit
2400

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